



## PATENT ABSTRACTS OF JAPAN

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**B01D 53/22**(21) Application number: **57196404**(22) Date of filing: **08.11.1982**(71) Applicant: **NITTO ELECTRIC IND CO LTD**(72) Inventor: **ABE MASAO**  
**ICHINOSE TAKASHI**(54) **GAS SEPARATION MEMBRANE**

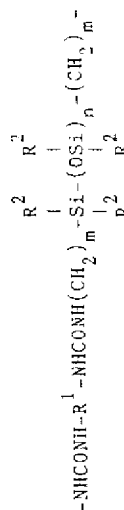
## (57) Abstract:

PURPOSE: To obtain a gas separation membrane excellent in oxygen permeability, chemical resistance and mechanical strength, by forming the same from a polyurea/silicone copolymer having a polysiloxane structure into the main chain of the polyurea thereof.

CONSTITUTION: A gas separation membrane has a structural unit shown by a formula and, for example, prepared as mentioned hereinbelow. That is, in a solution of bis( $\gamma$ -aminopropyl)tetramethyldisiloxane in N-methyl-2-pyrrolidone, a solution of diphenylmethane diisocyanate in a solvent mixture consisting of N-methyl-2-pyrrolidone and methyl isobutyl ketone is dripped in a small increment and the resulting mixture is reacted under heating. The reaction mixture is thrown into a large amount of water to precipitate a copolymer. After a 5wt% solution of this copolymer in N-methyl-2-pyrrolidone is cast on a tin plated plate, the formed film is heated at 20°C for 4hr and further heated at 150°C for 1hr to evaporate the solvent and

a homogeneous copolymer membrane is obtained. This membrane has coefficient of O<sub>2</sub>-permeation of  $3.1 \times 10^{-10} \text{ cm}^2 \cdot \text{cm/cm}^2 \cdot \text{sec cm Hg}$  and coefficient of N<sub>2</sub>-permeation of  $7.7 \times 10^{-11} \text{ cm}^2 \cdot \text{cm/cm}^2 \cdot \text{sec cm Hg}$ .

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(但し、R<sup>1</sup> は 2 価の有機基、R<sup>2</sup> はそれぞれ独立に 1 価のアシル基又は芳香族基、m は 2 ~ 4 の整数、n は 1 以上の整数を示す。)